



APR 20

APPENDIX BRIEF TRANSMITTAL LETTER (Large Entity)  
Applicants: Joseph M. Ferencz et al.

Docket No.  
1926A1

Application No. 10/809,595	Filing Date March 25, 2004	Examiner J.M. Wollschlager	Group Art Unit 1732
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Invention:

FOCUSED HEAT EXTRUSION PROCESS FOR MANUFACTURING  
POWDER COATING COMPOSITIONS  
TO THE COMMISSIONER FOR PATENTS:

Transmitted herewith is an Appellants' Brief Under 37 C.F.R. §41.37 in the above-identified application.  
The fee has been calculated and is transmitted as shown below.

CLAIMS AS AMENDED

	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST # PREV. PAID FOR	NUMBER EXTRA CLAIMS PRESENT	RATE	ADDITIONAL FEE
TOTAL CLAIMS	14	20 =	0	X \$ 50.00	\$000.00
INDEP. CLAIMS	2	3 =	0	X \$200.00	\$000.00

Multiple Dependent Claims (check if applicable) ☐

\$ 0.00  
\$000.00

TOTAL ADDITIONAL FEE FOR THIS AMENDMENT

- ☒ No additional fee is required for amendment.
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- ☒ Any additional filing fees required under 37 C.F.R. 1.16.
- ☒ Any patent application processing fees under 37 C.F.R. 1.17.

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Dated: May 24, 2007

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: MAIL STOP APPEAL BRIEF - PATENTS, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on May 24, 2007.

Florence P. Trevelthan  
(Name of Person Depositing Mail)

*Florence P. Trevelthan*  
Signature Date 05/24/2007

Response Under 37 CFR §41.37  
Application No. 10/809,595  
In Support of Notice of Appeal Dated January 17, 2007  
Paper Dated: May 24, 2007  
Attorney Docket No. 3152-063906  
PPG Attorney Docket No. 1926A1

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application No. : 10/809,595

Applicants : Joseph M. Ferencz et al.

Filed : March 25, 2004

Title : Focused Heat Extrusion Process for Manufacturing  
Powder Coating Compositions

Group Art Unit : 1732 Confirmation No. : 7249

Examiner : J.M. Wollschlager Customer No. : 24959

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Alexandria, VA 22313-1450

**APPELLANTS' BRIEF UNDER 37 C.F.R. §41.37**

Sir:

This Appeal Brief is resubmitted in response to the Notification of Non-Compliant Appeal Brief (37 CFR 41.37) dated May 1, 2007.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to MAIL STOP APPEAL BRIEF – PATENTS, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on May 24, 2007.

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*Florence P. Trevethan*

Signature

05/24/2007  
Date

The headings used hereinafter and the subject matter set forth under each heading are in accordance with 37 C.F.R. §41.37(c)(1).

**I. REAL PARTY IN INTEREST**

The real party in interest in this Appeal is PPG Industries Ohio, Inc. having acquired rights by way of an Assignment executed on July 13, 2004, and recorded in the United States Patent and Trademark Office at Reel 015601, Frame 0640, on July 26, 2004.

**II. RELATED APPEALS AND INTERFERENCES**

As the legal representative of Appellant, the undersigned has no knowledge of any appeals and interferences directly related to this Appeal.

**III. STATUS OF CLAIMS**

Claims 1-14 are currently pending and appealed in this application.

Pursuant to a final Office Action dated October 17, 2006, claims 1-14 have been rejected over prior art cited in the application.

**IV. STATUS OF AMENDMENTS**

No amendment to the claims has been filed subsequent to the final Office Action of October 17, 2006. A copy of the claims involved in this Appeal are contained in the Appendix attached hereto.

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

In one embodiment of the invention set forth in claim 1, Appellants have developed a process for manufacturing powder coating comprising:

- (A) feeding starting materials to an extruder;
- (B) shear mixing the starting materials at an ambient temperature in a first portion of the extruder; and
- (C) melt mixing the material from step (B) in a second portion of the extruder so as to achieve a melt mix, wherein the starting materials comprise a resin and a crosslinking agent.

See page 3, lines 5-25 and page 4, lines 12 and 13 of the specification.

In another embodiment set forth in claim 9, Appellants have developed an extrusion process for manufacturing powder coating compositions from starting materials. The extruder is divided into three portions; an initial ambient portion, an intermediate heated portion and a final cooled portion. The starting materials comprise resin and a crosslinking agent. See page 4, lines 12-14 and page 3, lines 5-14 of the specification.

**VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

1. Are claims 1, 2, 6-9, 12 and 13 anticipated by WO 00/69916 to Giezen et al. under 35 U.S.C. §102(b)?
2. Are claims 1, 2, 6-9 and 13 anticipated by WO 98/17726 to Sherman et al. under 35 U.S.C. §102(b)?
3. Are claims 1, 2, 6, 7, 9 and 13 anticipated by U.S. Patent No. 5,844,071 to Williams et al. under 35 U.S.C. §102(b)?
4. Are claims 3-5, 10 and 11 obvious over WO '916 under 35 U.S.C. §103(a)?
5. Are claims 3-5, 10 and 11 obvious over WO '726 under 35 U.S.C. §103(a)?
6. Are claims 3-5, 10 and 11 obvious over the Williams patent under 35 U.S.C. §103(a)?
7. Are claims 12 and 14 obvious over WO '726 under 35 U.S.C. §103(a)?
8. Is claim 14 obvious over WO '916 under 35 U.S.C. §103(a)?

**VII. ARGUMENT**

The preambles of independent claims 1 and 9 recite limitations therein that should be construed as being in the bodies of the claims. Claim 1 recites a "process for manufacturing powder coatings". Claim 9 recites an "extrusion process for manufacturing powder coating compositions". The prior art of the pending rejections does not teach or suggest processes relating to production of powder coating compositions.

**A. The preambles of claims 1 and 9 should be granted patentable weight.**

The Examiner has failed to grant patentable weight to the recitations in claims 1 and 9 that the respective claimed processes are for "manufacturing powder coatings" and for "manufacturing powder coating compositions".

In particular, the Examiner stated that "the recitation powder coating has not been given patentable weight because the recitation occurs in the preamble". The Examiner apparently believes that the preambles merely recite the purposes of the claimed processes and that the bodies of claims 1 and 9 do not depend on their preambles for completeness but could instead stand alone. No reason is provided by the Examiner for summarily categorizing the preambles of claims 1 and 9 as not being relevant to the patentability thereof.

**1. Claim preamble is a limitation when it is essential to the invention.**

Such a determination of whether the preamble of claims 1 and 9 limits the claims should be made on a case-by-case basis. *Catalina Mktg. Int'l v. Coolsavings.com, Inc.*, 289 F.3d 801, 62 USPQ 2d 1781 (Fed. Cir. 2002). The Examiner's automatic determination that the preambles do not affect the scope of the claims is inappropriate.

Under the proper analysis, when the claim preamble is read in the context of the entire claim and recites limitations of the claim or is necessary to give life, meaning and vitality to the claim, then the preamble should be construed as if in the body of the claim. *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 51 USPQ2d 1161 (Fed. Cir. 1999). When the specification and prosecution history clearly indicate that a feature present in the preamble is essential to the invention, it is appropriate to construe the claims as requiring that feature. *MBO Laboratories, Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 81 USPQ2d 1661 (Fed. Cir. 2007). This is particularly true when the patent relies on both the preamble and the claim body to define the claimed invention. *Catalina*, 289 F.3d at 808-9, 62 USPQ2d at 1785.

**2. The specification clearly indicates that powder coating compositions are essential to the invention.**

Claim 1 recites a "process for manufacturing powder coatings" listing the following steps:

- (A) feeding starting materials to an extruder;
- (B) shear mixing the starting materials at an ambient temperature in a first portion of the entire extruder; and
- (C) melt mixing the material from step (B) in a second portion of the extruder so as to achieve a melt mix, wherein the starting materials comprise a resin and a crosslinking agent.

Similarly, claim 9 recites "[a] process for manufacturing powder coating compositions". These claims are enabled by the specification that clearly only refers to a process of manufacturing powder coatings. See the following excerpts of paragraphs from the specification as filed:

[0001] "The present invention relates to the field of manufacturing **powder coating** compositions".

[0002-0004] (Describing problems associated with prior art processes for preparing **powder coating** compositions).

[0005] "The present invention provides an extrusion process for manufacturing **powder coating** compositions that achieves adequate dispersion of ingredients within the extrudate while minimizing internal crosslinking with the extrudate."

[0007] "The present invention is directed to a process for manufacturing **powder coating** compositions comprising feeding starting materials used in formulating the **powder coating** compositions to an extruder, such as from a premix hopper."

' "Starting material(s) of a **powder coating**', 'starting material(s)' and like terms refer to the components of the **powder coating**, including but not limited to one or more of resins, crosslinking agents, ...."

[0010] "Figure 1 is a schematic view of an extruder 10 for use in an extrusion process for manufacturing thermosetting **powder coating** compositions according to an embodiment of the present invention."

[0013] "With an understanding of the extruder 10, an extrusion process for the manufacturing of thermosetting **powder coating** compositions

according to one embodiment of the present invention can be further discussed. The starting materials used in formulating the **powder coating** compositions are fed to the extruder 10 through the main inlet 18, such as from the pre-mix hopper 12."

[0016] "The extrusion process for manufacturing thermosetting **powder coating** compositions described above according to the present invention maintains adequate dispersion of ingredients within the extrudate and minimizes internal crosslinking within the extrudate."

[0018] "Measuring the characteristics of pigmented and non-pigmented **powdered coatings** can be done, for example, in three different ways."

[0019] "Laboratory trials were conducted comparing a **coating powder** formed from a traditional extrusion process and a **coating powder** formed by process according to the present invention."

[0020] "The two **powder coatings** were electrostatically applied (approximately 3 grams of dry powder film) to 4" x 12" black electrocoated panels."

[0021] "As can be seen in Table 1, the **coating** prepared according to the present invention had better crater resistance as compared to the conventionally prepared **powder**."

**Abstract** "An extrusion process for manufacturing **powder coating** compositions is disclosed."

Step (A) of claim 1 recites "feeding starting materials to an extruder".

Such starting materials are components of a powder coating composition per para. [0007]. While Appellants are not urging that disclosure of the specification be imported into the claims, a proper reading of the specification (including para. [0007]) shows how Appellants define their invention as claimed.

Nowhere are other compositions considered in the present application – only powder coating compositions. The application clearly only relates to an improvement in producing powder coating compositions.

**3. The prosecution history clearly indicates that powder coatings are essential to the invention.**

The prosecution history to date is completely consistent with the inclusion of the preamble as a claim limitation. The claimed "starting materials" are defined in the specification at para. [0007] as being components of a powder coating composition. However, to clearly define over cited prior art directed to making powdered polymer (U.S. Pat. Nos. 4,041,115 to Jenkins et al. and 6,479,003 to Furgieule et al.), claims 1 and 9 were amended to recite that "the starting materials comprise a resin and a crosslinking agent" in the Amendment dated July 31, 2006. The remarks accompanying the Amendment included the following comparison of the claimed invention with the Jenkins patent:

Jenkins is cited as allegedly teaching a method for manufacturing powder coatings. In fact, Jenkins appears to teach a method for making a powdered polymer. The powdered polymer of Jenkins and the **powder coating of the present invention** are quite distinct, and as such Jenkins does not teach the present methods. Claims 1 and 9 have been amended to recite that the starting materials used in the present processes comprise a resin and a crosslinking agent. Support for the amendment is found in paragraph 7 and in the examples. As will be appreciated by one skilled in the art, **the manufacture of powder coatings from starting materials** comprising a resin and a crosslinking agent requires a high level of precision; for the coating to be useful, homogeneity of the starting [sic] materials in the final **powder coating** is desired. The resin and crosslinking agent react with each other under application of heat; it is ultimately this reaction that allows the **powder coating** to be cured and form a coating on a substrate.

Amendment dated July 31, 2006, page 4 (emphasis added).

The remarks further included the following comparison of the claimed invention with the Furgieule patent:

As with, Jenkins, Furgieule does not teach or remotely suggest a process for manufacturing **powder coatings**. Rather, Furgieule appears to



teach a method for making polymeric particulates, which would have particular relevance to the recycling of plastic. Furgiuele does not teach or suggest processes for manufacturing **powder coatings**, particularly those in which the starting materials comprise a resin and a crosslinking agent. While Furgiuele is cited as purportedly teaching a method for manufacturing **powder coatings** at column 4, lines 46 through 50, that excerpt actually relates to spray coating of polymeric particulates for melt processing of plastics; it is not relevant to **powder coatings** prepared from starting materials comprising a resin and a crosslinking agent.

*Id.* at page 5.

In so doing, Appellants have relied on the preamble phrases to define the claimed invention. Therefore, the preamble and bodies of claims 1 and 9 define the claimed invention. *Catalina*, 289 F.3d at 808, 62 USPQ2d at 1785.

As such, the requirements of claim 1 to first shear mix the starting materials, i.e., the starter materials of powder coatings, (step B) and then in step C, melt mix the material from step B in another portion of the extruder require the use of starting materials of a powder coating composition. Thus, the recitation of "powder coatings" in the preamble provides the meaning or purpose of the claim. The preamble must be read in the context of the entire claim. Steps A-C of the claim do not fully and intrinsically set forth all the limitations of the claimed invention. Applicants have described and claimed the invention as relating to production of powder coatings. Therefore, the claim 1 preamble of "[a] process for manufacturing powder coatings" is not merely an intended use of the method steps A-C, but actually results in a manipulative difference between the claimed method and prior art extrusion process.

Likewise, claim 9 recites "[a]n extrusion process for manufacturing powder coating compositions from starting materials". The process of claim 9 also recites treatment of the starting materials of a powder coating composition. The starting materials of a powder coating composition are treated in the three portions of the extruder. Thus, the three portions of the extrusion process should be read in the

context of producing powder coating compositions.

The recitations in the preambles that the processes are for manufacturing powder coatings serves to limit the claims and are consistent with all the representations made by the Appellants to date. The record clearly demonstrates that the preambles' statements of producing powder coatings is a basis for distinguishing over the prior art. Accordingly, the recitations in claim 1 of a process "for manufacturing powder coatings" and claim 9 of an extrusion process "for manufacturing powder coating compositions" should be considered upon examination of claims 1-14.

**B. WO '916 discloses extrusion of nanoparticles from a biopolymer, not production of powder coatings.**

**1. Claims 1, 2, 6-9, 12 and 13 are not anticipated by WO '916.**

As recognized in the final Office Action, WO '916 teaches a method for producing "biopolymer nanoparticles". The Examiner cites to paragraphs [0012]-[0013]. There is no teaching of producing powder coating compositions in WO '916.

Para. [0012] indicates that the invention of WO '916 pertains to nanoparticles obtained by extrusion of a biopolymer. The nanoparticles can then be used as a matrix material such as a resin in coating applications per para. [0013], such as a film-forming material, a thickener, a rheology modifier, or an adhesive or adhesive additive. The nanoparticles or dispersions thereof may be used as a chemical barrier, a carrier, a fat replacement, a component of cosmetic compositions, a medicament or in various other applications including in the paper making and packaging industry or in the agricultural and horticultural industries, or as removable and temporary coatings for protective purposes.

Nowhere does WO '916 teach a process for manufacturing powder coatings in which the starting materials of the powder coating include a resin and a crosslinking agent and by which the heat history of the powder coating extrusion is controlled. To the extent that WO '916 discloses use of the nanoparticles produced thereby in coating compositions, nowhere does the reference teach the production of

**powder coatings** as recited by independent claims 1 and 9 of the present application.

Upon due consideration of the preambles of claims 1 and 9, the anticipation rejections of claims 1, 2, 6-9, 12 and 13 over WO '916 is clearly overcome.

**2. Claims 3-5, 10 and 11 are non-obvious over WO '916.**

There is no suggestion or consideration in WO '916 to practice a process of manufacturing powder coatings in which the starting materials of the powder coating include a resin and a crosslinking agent and by which the heat history of the powder coating extrusion is controlled. The extrusion of nano-particles for use in coating compositions does not relate to producing powder coatings from a resin and crosslinking agent in which the heat history of powder coating extrusion is controlled. Thus, because WO '916 fails to suggest the features of independent claims 1 and 9, it does not render obvious claims 3-5, 10 and 11.

The length of portions of an extruder used in producing powder coatings is not considered by WO '916, because WO '916 does not even relate to extrusion of powder coatings – only extrusion of nano-particles for dispersion in a coating. Therefore, claims 3-5, 10 and 11 are patentable thereover.

**3. Claim 14 is non-obvious over WO '916.**

There is no suggestion or consideration in WO '916 to practice a process of manufacturing powder coatings in which the starting materials of the powder coating include a resin and a crosslinking agent and by which the heat history of the powder coating extrusion is controlled. The extrusion of nano-particles for use in coating compositions does not relate to producing powder coatings from a resin and crosslinking agent in which the heat history of powder coating extrusion is controlled. Since WO '916 fails to suggest the features of independent claim 11, it does not render obvious claim 14. Moreover, while controlling the heating of the shear mix of a powder coating composition is a feature of the present invention, the teachings of WO '916 provide no reason to control focused heating as claimed since

it relates to extruding nano-particles, not extruding resinous powder coating compositions. Accordingly, claim 14 defines thereover.

**C. WO '726 produces mixtures of organic polymers and polydiorganosiloxane urea-containing components, not powder coating compositions.**

**1. Claims 1, 2, 6-9 and 13 are not anticipated by WO '726.**

The WO '726 reference is directed to a process for producing a mixture of an organic polymer and at least one polydiorganosiloxane urea-containing components. The mixture is useful for plastics, release surfaces, pressure-sensitive adhesives, hot metal adhesives, vibration damping compositions and articles made therefrom. The reference describes using a twin screw extruder as a reaction vessel in producing the polydiorganosiloxane urea-containing component from a polyamine and a polyisocyanate.

Nowhere is there any teaching in WO '726 to produce a **powder coating composition** from the compositions disclosed by WO '726. As detailed above, claims 1 and 9 are properly read to require that the claimed processes manufacture powder coating compositions. For the same reason that the WO '916 patent does not anticipate any claim of the present application, the WO '726 reference, likewise, does not teach producing powder coating compositions according to the present invention. Thus, claims 1, 2, 6-9 and 13 are novel thereover.

**2. Claims 3-5, 10 and 11 are non-obvious over WO '726.**

There is no suggestion or consideration in WO '726 to practice a process of manufacturing powder coatings in which the starting materials of the powder coating include a resin and a crosslinking agent and by which the heat history of the powder coating extrusion is controlled. The extrusion of nano-particles for use in coating compositions does not relate to producing powder coatings from a resin and crosslinking agent in which the heat history of powder coating extrusion is controlled. Thus, because WO '726 fails to suggest the features of independent claims 1 and 9, it does not render obvious claims 3-5, 10 and 11.

The length of portions of an extruder used in producing powder coatings is not considered by WO '726 because WO '726 does not even relate to extrusion of powder coatings – only extrusion of nano-particles for dispersion in a coating. Therefore, claims 3, 4, 10 and 11 are patentable thereover.

**3. Claim 12 and 14 are non-obvious over WO '726.**

There is no suggestion or consideration in WO '726 to practice a process of manufacturing powder coatings in which the starting materials of the powder coating include a resin and a crosslinking agent and by which the heat history of the powder coating extrusion is controlled. The extrusion of nano-particles for use in coating compositions does not relate to producing powder coatings from a resin and crosslinking agent in which the heat history of powder coating extrusion is controlled. Since WO '726 fails to suggest the features of independent claim 11, it does not render obvious claims 12 or 14. Moreover, while controlling the heating of the shear mix of a powder coating composition is a feature of the present invention, the teachings of WO '726 provide no reason to control the temperature of the heated portion of a powder coating extruder as claimed in claim 12 or to control focused heating as in claim 14 since it relates to extruding nano-particles, not extruding resinous powder coating compositions. Accordingly, claims 12 and 14 define thereover.

**D. The Williams patent produces ink resins, not powder coating compositions.**

**1. Claims 1, 2, 6, 7, 9 and 13 are not anticipated by Williams.**

The Williams patent is directed to a process for making ink resins. While a resin and crosslinking agent are processed through an extruder having mixing zones, nowhere does the Williams patent teach extrusion of the components of powder coating compositions as claimed. As detailed above, the limitations in the preamble of claims 1 and 9 that the processes produced powder coating compositions should be given patentable weight. Those limitations of the preamble give life and meaning to the claims and are consistent with all of the prosecution to date presented by the Appellants. Accordingly, claims 1, 2, 6, 7, 9 and 13 are novel over the Williams patent.

**2. Claims 3-5, 10 and 11 are non-obvious over Williams.**

There is no suggestion or consideration in the Williams patent to practice a process of manufacturing powder coatings in which the starting materials of the powder coating include a resin and a crosslinking agent and by which the heat history of the powder coating extrusion is controlled. The cited patent describes processing ink resins through an extruder. It does not relate to producing powder coatings from a resin and crosslinking agent in which the heat history is controlled. The length of portions of an extruder for the ink resins of Williams are not at issue therein. There can be no reason to modify Williams' disclosure to control the heat history in portions of a powder coating extruder when Williams does not even relate to powder coating extrusions. Therefore, claims 3, 4, 10 and 11 are non-obvious.

**VIII. CONCLUSION**

Upon granting patentable weight to the preamble of claim 1 directed to a process for "manufacturing powder coatings" and to the preamble of claim 9 directed to a process for "manufacturing powder coating compositions", the rejection of claims 1-14 based on references that do not relate at all to production of powder coating compositions should be withdrawn. Reversal of the final rejections and allowance of claims 1-14 is respectfully requested.

Response Under 37 CFR §41.37  
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The Commissioner is authorized to charge any additional fees which may be required to Deposit Account No. 16-2025. Please refund any overpayments to Deposit Account No. 16-2025.

**All correspondence regarding this application should be sent to:**

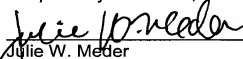
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**CLAIM APPENDIX**

1. A process for manufacturing powder coatings comprising:
  - A) feeding starting materials to an extruder;
  - B) shear mixing the starting materials at ambient temperature in a first portion of the extruder; and
  - C) melt mixing the material from step B in a second portion of the extruder so as to achieve a melt mix, wherein the starting materials comprise a resin and a crosslinking agent.
2. The process of Claim 1 further comprising:
  - D) cooling the melt mix of step C in a third portion of the extruder.
3. The process of Claim 1, wherein the first portion forms about 25% to about 40% of the length of the extruder.
4. The process of Claim 1, wherein the second portion forms about 25% to about 40% of the length of the extruder.
5. The process of Claim 2, wherein the third portion forms about 25% to 40% of the length of the extruder.
6. The process of Claim 2, wherein the temperature of the melt mix is reduced by about 10°C to 35°C prior to exiting the extruder.
7. The process of Claim 1, wherein the powder coating is a thermosetting powder coating.
8. The process of Claim 1, wherein the material of step B is melt mixed at a temperature of about 70°C to 150°C.



9. An extrusion process for manufacturing powder coating compositions from starting materials, wherein the extruder is divided into three portions, an initial ambient portion, an intermediate heated portion, and a final cooled portion, and wherein the starting materials comprise a resin and a crosslinking agent.

10. The extrusion process of Claim 9, wherein the heated portion of the extruder forms about 35% to about 40% of the length of the extruder.

11. The extrusion process of Claim 9, wherein the ambient portion of the extruder forms about 25% to about 32% of the length of the extruder.

12. The extrusion process of Claim 9, wherein the heated portion of the extruder heats the starting materials to a temperature 40°C to 140°C higher than the temperature of the starting materials in the initial, ambient portion.

13. The process of Claim 1, wherein the melt mix is subjected to focused heating.

14. The process of Claim 13, wherein the focused heating comprises heating the shear mix to a temperature of 70°C to 150°C for 1 to 30 seconds.

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**EVIDENCE APPENDIX**

None.

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**RELATED PROCEEDING APPENDIX**

None.